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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/285,773	04/05/99	MERCALDI G	M4065.165/P1

EXAMINER	
UMEZ ERONINI,I	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/285,773	Applicant(s) MERCALDI ET AL.	
	Examiner Lynette T. Umez-Eronini	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-11,13-18,~~23~~22-41 and 82-86* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7, 9-11, 13-18, ~~23~~22-41, and 82-86* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) ☐ Notice of References Cited (PTO-892)
15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other: .

DETAILED ACTION

Continued Prosecution Application

1. The request filed on February 23, 2001 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/285773 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 7, 9, 10, 22, 27-30, 82, and 84-86 are rejected under 35 U.S.C. 102(b) as being anticipated by Yutaka (JP 58207009).

Yutaka etches a semiconductor substrate using a liquid mixture consisting of HBr, HNO_3 and an alcohol (e.g. methanol, ethanol, etc.), (Abstract). In the art of etching semiconductors, conventional, non-aqueous solvents include organic liquids such as alcohols, ketones, and esters. Hence, the liquid mixture as taught by Yutaka, reads on a non-aqueous composition consisting of an alcohol and at least two inorganic acids.

It is noted that no patentable weight is given to, "for selectively etching a doped substance" **in claims 1 and 82** and "for selectively etching doped silicon" **in claim 22** because the functional language shows intended use. No patentable weight is given to the phrase, "A composition for selectively etching doped material of amorphous silicon,

pseudopolycrystalline or polycrystalline silicon; doped germanium; and gallium arsenide as recited **in claims 84, 85, and 86** respectively. Likewise the intended use of composition is not patentably significant. *In re Albertson* 141 USPQ 730 (CCPA 1964); *In re Heck* 114 USPQ 161 (CCPA 1957).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-5, 11, 23-26, 31, 32, and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yutaka (JP 58207009) as applied to claims 1 and 22 respectively.

Yutaka differs in failing to teach the composition, wherein said alcohol is a polyhydric alcohol such as propylene, **in claims 5, 11, 26, 32, and 83**. In the art of etching semiconductors, conventional non aqueous solvents include organic liquids such as alcohols, ketones and esters. Commonly used alcohols include ethylene glycol and propylene glycol.

It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ a conventional solvent such as propylene glycol for the purpose of producing an effective etchant.

6. Claims 13-18 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yutaka (JP 58207009) as applied to claims 1 and 22 respectively.

No patentable weight is given to the phrase, "for selectively etching doped polysilicon from a silicon substrate with high selectivity to undoped polysilicon." because the functional language shows intended use. Likewise the intended use of composition is not patentably significant. *In re Albertson* 141 USPQ 730 (CCPA 1964); *In re Heck* 114 USPQ 161 (CCPA 1957).

Yutaka differs in failing to specify processing variables that are recited **in claims 13-18 and 33-38.**

It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ any of a variety of operational variables such as those claimed by the applicant. They are well-known variables in the etching art and known to affect both the rate and quality of the etching process. Conducting routine experimentation to obtain the best-etched product would optimize the selection of a particular value. Changes in concentrations or other process conditions of an old process do not impart patentability unless the recited ranges are critical; i.e.; they produce a new and unexpected result. *In re Aller et al.*, 105 USPQ 233.

7. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi Electric Corp. (JP 0048816).

No patentable weight is given to, "for selectively etching doped polysilicon from a silicon substrate with high selectivity to undoped polysilicon." because the functional

language shows intended use. Likewise the intended use of composition is not patentably significant. *In re Albertson* 141 USPQ 730 (CCPA 1964); *In re Heck* 114 USPQ 161 (CCPA 1957).

Yutaka differs in failing to teach a non-aqueous composition comprising propylene glycol **in claims 39-41**.

In the etching art, conventional non-aqueous solvents include organic liquids such as alcohols, ketones and esters. Conventional solvents include ethylene glycol and propylene glycol.

It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ a conventional non-aqueous composition such as propylene glycol for the purpose of producing an effective etchant.

Yutaka differs in failing to specify processing variables that are recited **in claims 39-41**.

It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ any of a variety of operational variables such as those claimed by the applicant. They are well-known variables in the etching art and known to affect both the rate and quality of the etching process. Conducting routine experimentation to obtain the best-etched product would optimize the selection of a particular value.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 703-306-9074.

BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

ltue
March 5, 2001